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Reply to the Editor:

My coauthors and I thank Drs Takagi and colleagues for their interest in our article, and we agree with their comments in regard to the inclusion of trials reporting the results of off-pump surgery in 2006. Our omission was simply the result of the time lag between the completion of our search (October 2005) and that of manuscript preparation, review, and publication.

Concerning the inclusion of early or late graft patency results, the sensitivity analysis from our work did reveal an increasing difference between the results of early and late graft patency.[1] The analysis was, however, fraught with statistical heterogeneity—hence our caution with the interpretation. It is clear that evidence continuously emerges on the poorer graft patency in off-pump surgery. With the inclusions of trials from 2006 and late graft patency, Takgai and colleagues have managed to obtain further insights into comparative patency by (left anterior descending versus non–left anterior descending) territory. We await the results of their forthcoming meta-analysis and welcome their agreement with our work.

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Carotid artery cannulation in aortic surgery

To the Editor:

We read with great interest the article from Dr Urbanski and colleagues[1] describing the results of carotid artery cannulation in aortic surgery. We congratulate them for their success and outstanding effort in one of the most challenging issues in cardiac surgery. However, we have some concerns about the routine cannulation of the left carotid artery for both systemic and antegrade cerebral perfusion (ACP) in aortic surgery.

Data have accumulated that the major cause of cerebral insults after repair of aortic arch or ascending aortic aneurysms is cerebral embolization rather than inadequate cerebral protection, unless the operation is very prolonged. For this reason, selection of the arterial cannulation site for cardiopulmonary bypass is one of the most critical steps during these complex procedures. Ascending aortic, femoral, and axillary arteries are commonly preferred cannulation sites for systemic and/or cerebral perfusion. Dr Urbanski and colleagues[1] claimed that carotid artery cannulation prevents interruption of the cerebral blood flow during placement of the perfusion cannulas in the supra-aortic vessels and the risk of cerebrovascular events as a result of air embolism or the consequent dislodgment of atherosclerotic debris. Also, it avoids the manipulation of the arch arteries for perfusion cannula placement for ACP. On the other hand, in the cardiovascular system, carotid arteries are one of the most vulnerable sites for systemic atherosclerosis. Patients indicated for elective repair of ascending aortic and arch repair usually have multiple risk factors for atherosclerosis and multiple comorbidities like coronary artery disease (CAD) and chronic obstructive pulmonary disease (COPD). Dr Urbanski and colleagues reported 85% hypertension, 35% CAD, 16% COPD, and 5% previous neurologic events in their patient population. It has been stated that a significant number of patients undergoing surgical repair for degenerative aneurysm of the descending thoracic and thoracoabdominal aorta has hemodynamically important carotid and coronary artery disease.[2] Atherosclerotic carotid artery disease, either hemodynamically significant or not, is fairly common in this patient population. In our opinion, carotid artery manipulation for anastomosing a graft to the artery itself and the turbulence secondary to the arterial flow directed to the carotid system further increase the risk for cerebral embolization in these patients. Additionally, carotid artery cannulation for antegrade cerebral protection eliminates the vertebral artery, which is an important collateral for cerebral perfusion.

On the other hand, axillary arteries are relatively resistant to the atherosclerotic process. It has been shown that the right axillary artery cannulation by either direct or side graft technique is an easy and effective technique for both systemic and ACP in aortic surgery.[3] Brachial plexus injury, dissection, arm ischemia, compartment syndrome, and local wound complications have been reported to develop after axillary artery cannulation.[3,4] However, we believe that technical problems and complications of axillary cannulation are obviously less considerable, compared with the carotid artery cannulation. Overall, we believe that right axillary artery cannulation is superior to carotid artery cannulation in aortic surgery.

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Reply to the Editor:

My colleagues and I very much appreciate Dr AK and Dr Dogan's interest in our article published in the December issue of the *Journal*.[1]

The authors of the letter try to demonstrate that axillary artery cannulation is superior to carotid artery cannulation. Apparently, their opinion is based mainly on recent reports, especially on that of Kieffer and associates,[2] in which among 130 patients operated on because of degenerative aneurysm of the descending thoracic and thoracoabdominal aorta, 9% had significant stenosis of one carotid artery.[2] However, the coexistence of the proximal aortic aneurysm and significant arteriosclerosis of carotid arteries is noticeably less, averaging about 2%, not only in our population described, but also in our overall